

CLAIMS

1. A hand-portable device including:
an engine assembly;
5 a cover for encasing the engine assembly; and
a closing arrangement alterable between a first condition in which it
retains at least a part of the cover on the engine assembly and a second
condition in which it allows the part of the cover to be removed from the
engine assembly;
10 the closing arrangement including a polymer actuator which is alterable
between a first configuration and a second configuration to alter the closing
arrangement between the first and second conditions respectively.
2. A hand-portable device according to claim 1, wherein the polymer
15 actuator includes an electroactive polymer, this being a polymer which is
capable of converting electrical to mechanical energy.
3. A hand-portable device according to claim 1, wherein the closing
arrangement includes means for altering the configuration of the polymer
20 actuator between the first configuration and the second configuration by
selectively applying a voltage to the polymer actuator.
4. A hand-portable device according to claim 3, wherein the polymer
actuator includes a conductive polymer.
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5. A hand-portable device according to claim 4, wherein the polymer
actuator further includes an electrolyte sandwiched between two electrodes,
one of the electrodes comprising the conductive polymer.
- 30 6. A hand-portable device according to claim 5, wherein the polymer
actuator is bistable, such that voltage may be applied to alter it between its

first and second configurations, but application of voltage is not necessary to maintain it in either its first or its second configuration.

5 7. A hand-portable device according to claim 6, wherein the polymer actuator in its first condition mechanically retains the cover on the engine assembly.

10 8. A hand-portable device according to claim 1, wherein the device is configured such that when the closing arrangement is in the second condition, at least a part of the cover is forced out of contact with the engine assembly.

15 9. A hand-portable device according to claim 1, wherein the device includes input means for allowing the input of security information to control the selective alteration of the polymer actuator between the first and second configurations.

20 10. A hand-portable device according to claim 9, wherein the security information comprises a code such as a numeric, alpha or alphanumeric code, which may be input via a user input of the hand-portable device.

11. A hand-portable device according to claim 9, wherein the hand portable device includes a receiver for receiving the security information from a remote source.

25 12. A hand-portable device according to claim 9, wherein the hand-portable device is configured such that it becomes partially or completely non-functional if the cover is removed from the engine assembly in the absence of the input of predetermined security information.

30 13. A hand-portable device according to claim 1, wherein the cover includes at least two cover parts which are detachable from the engine assembly, the cover being retained on the engine assembly by attaching the

cover parts together to encase the engine assembly or by attaching each cover part to the engine assembly.

14. A hand-portable device according to claim 1, wherein the cover includes one cover part which is permanently attached to the engine assembly and one cover part which is detachable from the engine assembly, the cover being retained on the engine assembly by attaching the detachable cover part to the other cover part or to the engine assembly.

15. A hand-portable device according to claim 13 or claim 14, wherein the closing arrangement may selectively retain together first and second closure portions of the hand-portable device, in order to selectively retain the part of cover on the engine assembly, the first closure portion being on one cover part and the second closure portion on the other cover part, or the first closure portion being on one of the cover parts and the second closure portion on the engine assembly.

16. A hand-portable device according to claim 15, wherein the device is configured such that when the two closure portions are retained together by the closing arrangement, a waterproof seal is formed between the closure portions.

17. A hand-portable device according to claim 15, wherein the polymer actuator is located in one of the closure portions, and the other closure portion is shaped to define a recess into which the polymer actuator may extend when in its first condition, to retain the two closure portions together and thereby retain the cover on the engine assembly.

18. A hand-portable device according to claim 17, wherein each cover part of the hand-portable device includes a body portion for covering a back or front of the engine assembly and a perimeter portion, the respective perimeter portions contacting one another when the cover encases the engine

assembly, the perimeter portions of the cover parts comprising the closure portions.

- 5 19. A hand-portable device according to claim 18, wherein the polymer actuator extends substantially around the perimeter portion of one cover part and the recess extends substantially around the perimeter portion of the other cover part, the polymer actuator on the one cover part selectively extending into the recess on the other cover part to retain the two cover parts together.
- 10 20. A hand-portable device according to claim 18, wherein a plurality of discrete polymer actuators are provided around the perimeter portion of one cover part, with complimentary recesses being defined within the other cover part.
- 15 21. A cover part for a hand-portable device according to claim 1, the cover part including a polymer actuator, the configuration of which may be altered to alter the condition of the closing arrangement of the hand-portable device.
- 20 22. A method of assembly and disassembly of a hand-portable device including an engine assembly, a cover for encasing the engine assembly and a closing arrangement comprising a polymer actuator having a first configuration and a second configuration, the method including the step of altering the configuration of the polymer actuator between the first and second configurations, to alter the closing arrangement between a first condition in
25 which it retains at least a part of the cover on the engine assembly and a second condition in which the part of the cover may be removed from the engine assembly.
- 30 23. A method according to claim 22, wherein the method includes the step of altering the configuration of the polymer actuator by the selective application of a voltage to the polymer actuator.

24. A method according to claim 23, wherein the selective application of the voltage is controlled by the input of security information to the hand-portable device.
- 5 25. A method according to claim 24, wherein the security information is input via a user input of the hand-portable device.
26. A method according to claim 24, wherein the security information is input from a remote source such as an external device or via a
10 communications network.
27. A hand-portable device including an engine assembly and a cover encasing the engine assembly, the cover being formed in at least two parts and the device including a sealing arrangement for sealing between the two
15 parts or between one of the cover parts and the engine assembly, the sealing arrangement including a polymer actuator.